OUR PASSENGERS ARE OUR BUSINESS

Sixth Annual FAA National Civil Rights Training Conference for Airports

August 12, 2015

BWI BALTIMORE/WASHINGTON INTERNATIONAL *Thurgood Marshall* AIRPORT

Goal:

To increase the efficiency of all facets of parking activities and transactions at Baltimore/Washington International Airport (BWI). The program included deploying numerous state-of-the-art parking guidance, express payment and customer information systems, all aimed at maintaining BWI's status as the "Easy Come, Easy Go" airport of choice in the Washington-Baltimore Region.

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Why:

Improve customer service and satisfaction

- Reduce search time for parking.
- Reduce overall travel stress.
- Customer friendly facilities.
- Increases fill percentage of parking facilities & reduces probability of facility closures.
- Provides accurate status information.

Why:

Improve management and planning of parking facilities

- **Provides real time parking statistics.**
- **Tracks dwell time of vehicles; hours, days, etc.**
- **Provides additional insight into customer needs and habits.**
- **Provides historical data for forecasting parking needs, both short and long term.**

Why:

Positive environmental impact

- **Reduces gasoline consumption.**
- **Reduces vehicle emissions.**

Automated Parking Guidance System

The Automated Parking Guidance System represents ground breaking technology and BWI Thurgood Marshall Airport was the first airport in the United States to use this new and revolutionary technology.
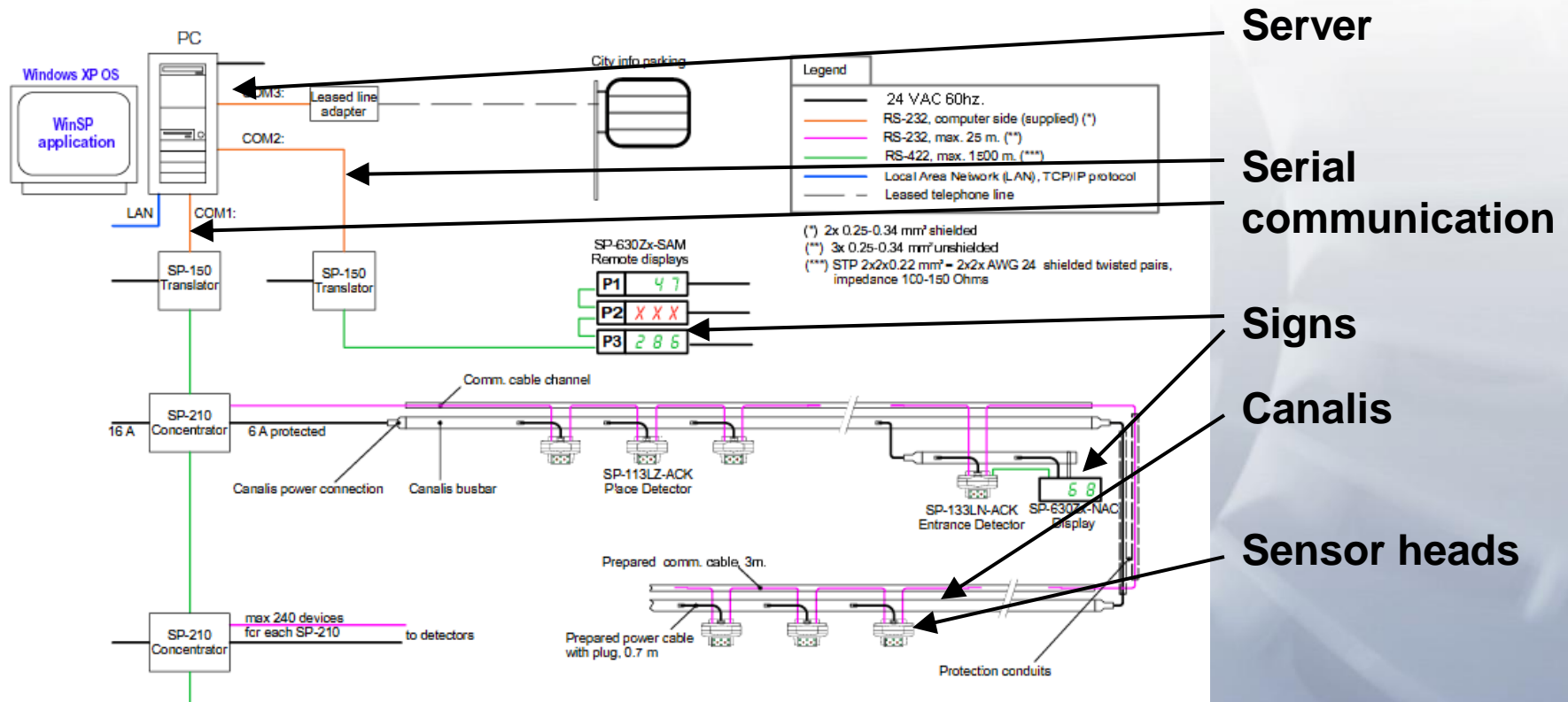
• System overview:

- • sensors mounted over each parking space
- • real-time vacancy status communicated to central server
- • Illuminated electronic "way-finding" signs controlled by the central server guide the customer to the available spaces

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High level Network Diagram

Sensor head connections and mounting

Canalis – Supplies power and mechanical support of the sensor head

Data cable – connection to server for data aggregation and sign control

Sensor head – downward pointing sonic sensor to determine if space is occupied and LEDs to supply customer feedback

Timeline:

April 2001: Pilot install of Automated Parking Guidance System (APGS) completed on level 2 of the Hourly garage

Note: The Hourly garage contains six levels.

Timeline:

November 2002: First phase of Daily garage opens (3000 spaces) with full APGS installed.

Timeline:

October 2004: Install of Automated Parking Guidance System (APGS) completed on remaining levels (1,3,4,5) of the Hourly garage.

Note: The Hourly garage contains six levels. Total of 4000 spaces.

Timeline:

December 2004: Daily garage finished (8400 spaces) with full APGS installed.

The public interface to the Automated Parking Guidance System.

"Signs and lights"

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Automated Parking Guidance System

Daily A Garage Entrance

Hourly Garage Entrance

Available park space counts per level are available at the entrance to each garage

Automated Parking Guidance System

Daily A Garage

Hourly Garage

Level space indicators within the garage

Automated Parking Guidance System
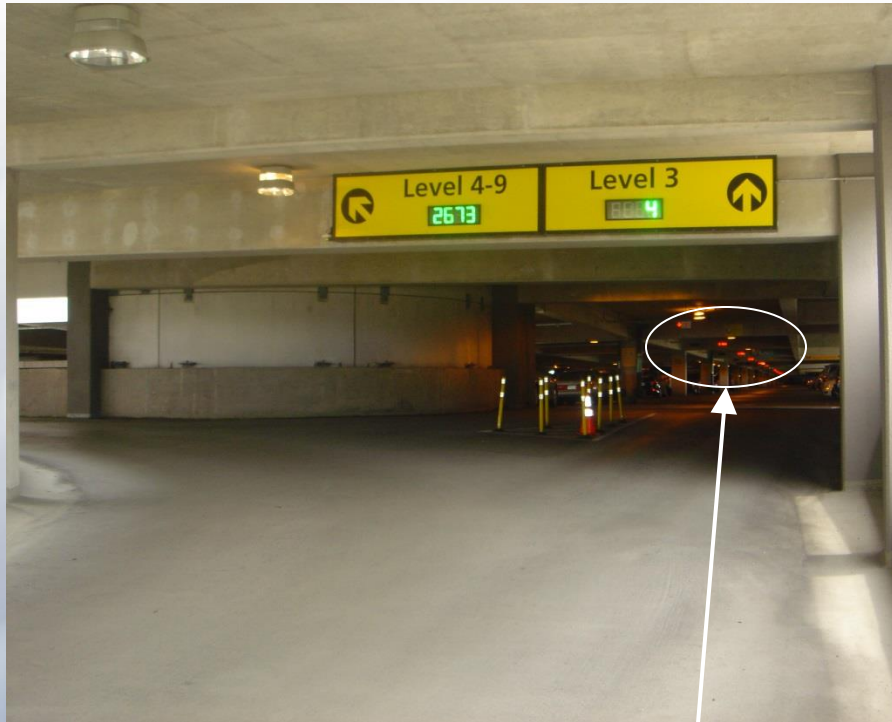
Daily A Garage   **Hourly Garage**

Note all of the red X's indicating no spaces available. This level only has 4 spaces available.

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Isle Sensors

These two sensors are located at the beginning of an isle. They detect when a vehicle has entered an isle and is "shopping" for a space. Therefore, the isle numeric sign decrements by one for that isle, assuming there is one less available space. If the sensors in that isle do not register a new space being occupied within 15 seconds then the isle counter increments to indicate a drive through.

Automated Parking Guidance System

The public interface for the disabled community to the Automated Parking Guidance System.

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Disabled Parking Signage

Disabled parking isle space count

Regular parking isle space count

No Disabled parking available in the next row. Red XXX showing

All disabled parking is on level 5 of Hourly Garage and level 2 of Daily Garage. These locations offer covered parking, high vehicle clearances, and easy access to elevators (Hourly) or buses (Daily).

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Automated Parking Guidance System

Disabled Parking Signage

Disabled Vacancy indicators are Blue

Let's examine the administrative view of the system. Logging into the server, here are a few of the screens that are available to help manage the system.

Administration console – level view
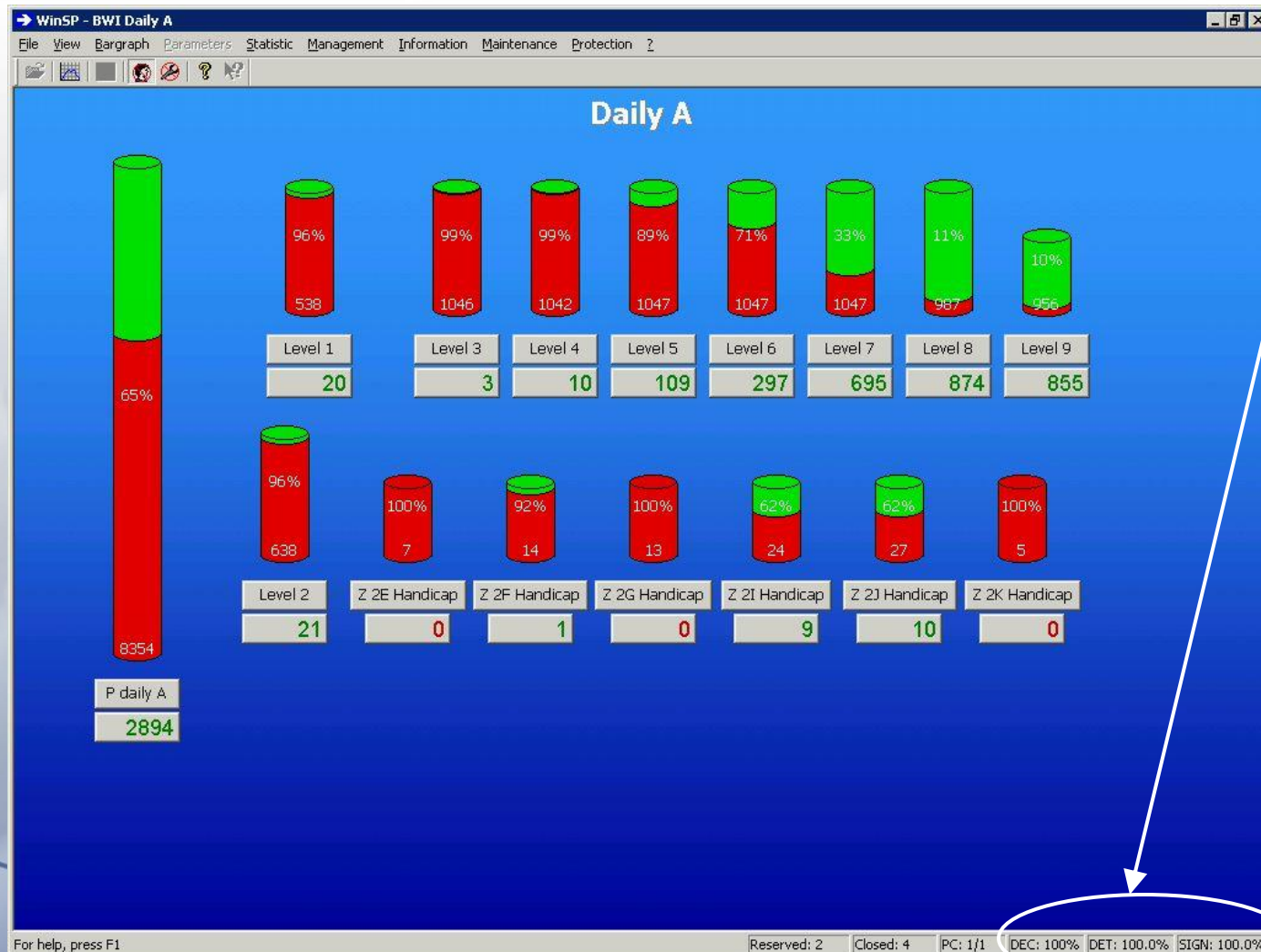
Decoders,

Detector Heads

&

Signs

Are all operational

Automated Parking Guidance System

Administration console – level view
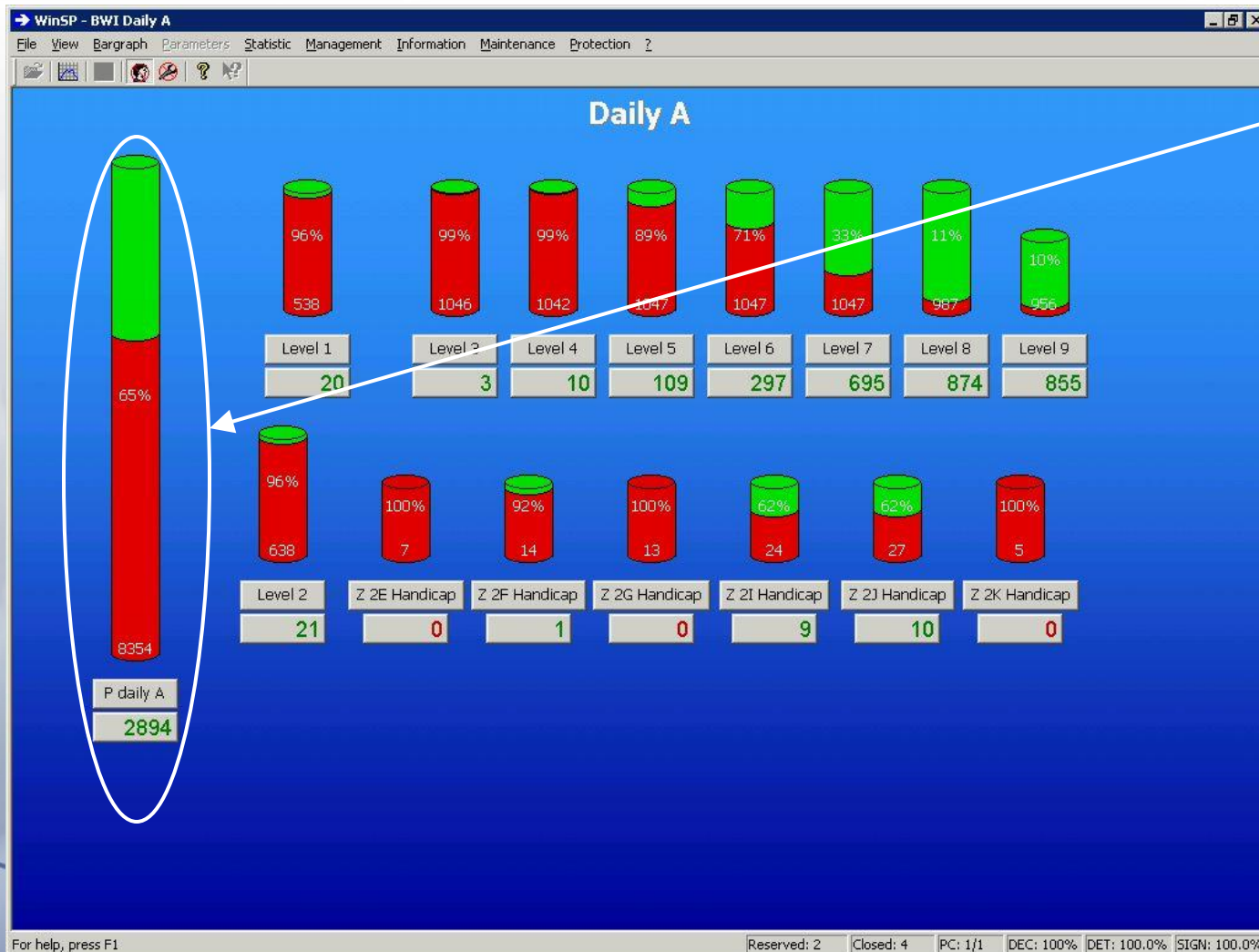
Daily A garage is 65% full.

2894 vacant spaces remain

Automated Parking Guidance System

Administration console – level view
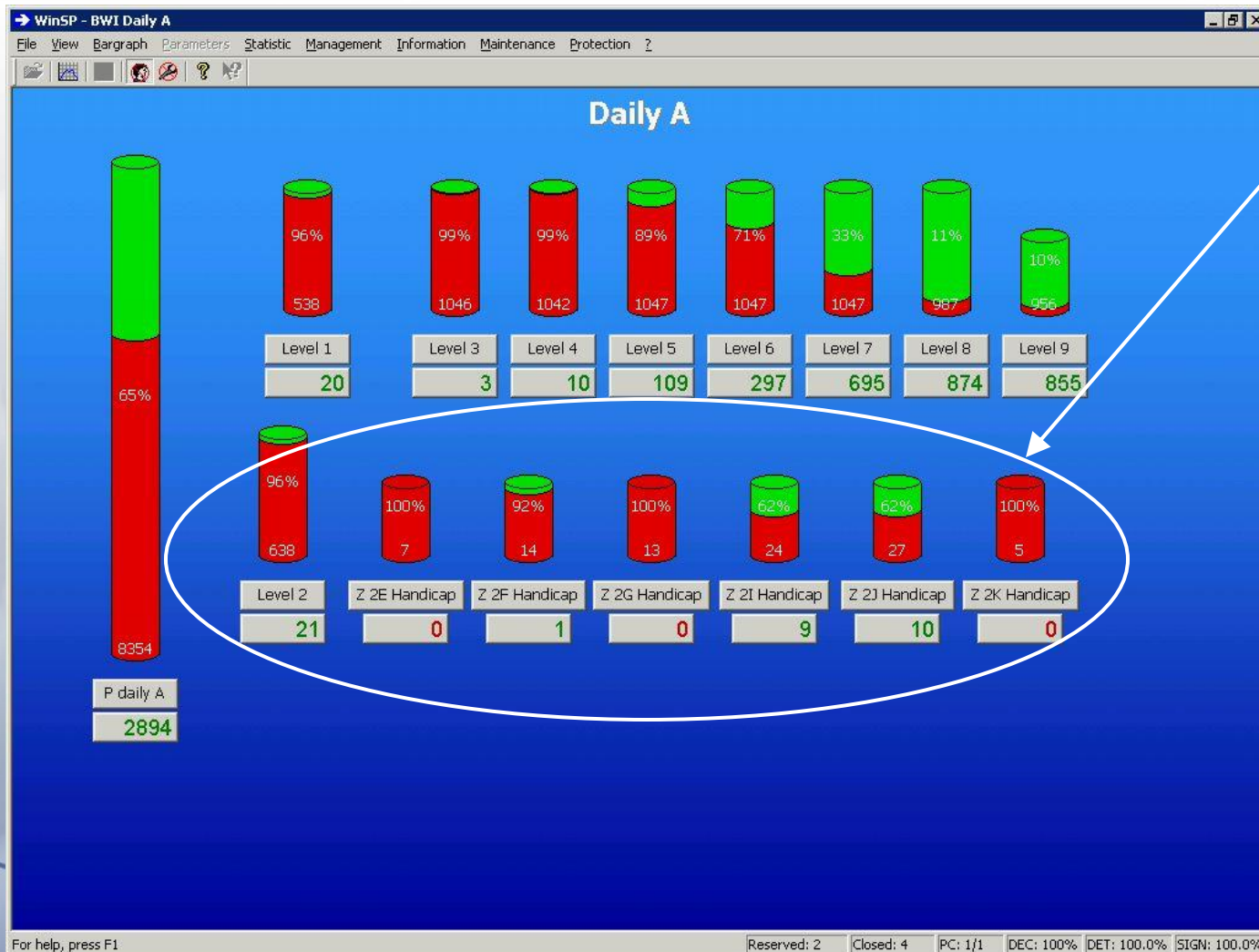
Level 2 contains

Handicap zones:

2E,2F,2G,2I,2J, and 2K with the following vacancies (green #'s in box)

Level 2 has 21 vacant spaces remaining

Administration console – Detector Status screen

This is the Detector status screen for decoder #37. Each decoder can receive data from up to 240 devices.

Each row here represents a sensor head with the address, current LED display, model, name and any alarms

No alarms

Healthy status

Financial Information:

• **Cost per space was approximately $500. Current costs have dropped to $250 through competition and market maturity.**

Note: This figure includes canalis, heads, signage, cabling, server, etc…

Other important information:

Vehicle clearances are very important. The sensor heads are mounted on canalis suspended over the parking spaces. Care must be taken to prevent over height vehicles from hitting and damaging the system.

Other important information:

Green vacancy indicator

Patron has park crooked so that the sensor indicates to the system that the space is still available.

•Questions/Answers

- Manufacturer: Schick Electronics, sa (Switzerland)

- BWI established a direct relationship with Schick Electronics, sa

Thank You

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